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| 10/693,023 | 10/23/2003 | Michael D. Jones | 7264-1 | 1758 |

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| EXAMINER | |
|---|---|
| LAI, MICHAEL C | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/693,023 | JONES, MICHAEL D. | |
| | Examiner | Art Unit | |
| | Michael C. Lai | 2143 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Priority*

This application has no priority claim made. The filing date is 10/23/2003.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Claim 9 is vague and indefinite since a dependent claim cannot be dependent on itself.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 6-8 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson et al. (US 2002/0152305 A1), hereinafter referred to as Jackson.

5. Regarding claim 1, Jackson discloses a system for monitoring errors in a network of computers comprising (the information management system, paragraph 0037 and Fig. 7):

a first computer having a processor, integral storage means, and means for electronically communicating with other computers in the network (a network computer

inherently has a processor, integral storage means, and means for electronically communicating with other computers in the network);

a plurality of data storage devices in said network (a network inherently has a plurality of data storage devices);

a second computer having a processor, integral storage means, and means for electronically communicating with the plurality of data storage devices and said first computer (a network computer inherently has a processor, integral storage means, and means for electronically communicating with other computers including data storage devices in the network);

first computer software means installed in said first computer for managing data received from said first computer (the service management infrastructure, paragraphs 0288 and 0289);

second computer software means installed in said second computer for retrieving log page data from said plurality of data storage devices and transmitting said data to said first computer (the service management infrastructure, paragraphs 0288 and 0289); and

said first computer software means further including means for arranging said log page data in a database and generating user interface information concerning the status of at least one data storage device in the network (logging and analysis manager may be configured to have three component modules: data retrieval module, data analysis module, and user interface module. Paragraph 0454).

The instant application addresses monitoring errors in a network of data storage devices. Jackson discloses a system to monitor system resources including bandwidth, storage processing, application processing, network protocol stack processing, host management processing, memory or storage capacity, etc. (paragraph 0270). Jackson also further discloses that automatic alarms warning of chronic over-utilization or other adverse system workload conditions may be generated based on one or more resource utilization analyses performed by data analysis module 1067 (paragraph 0470). Therefore, Jackson inherently addresses monitoring errors in a network of data storage devices as described in the instant application.

6. Regarding claim 2, Jackson further discloses: said first computer software means further includes means for generating predictive analysis of said log page data in said database, said predictive analysis including user interface information concerning potential failure of said at least one data storage device (data analysis module for short term forecasting and long term trend analysis, paragraph 0461).

7. Regarding claim 3, Jackson further discloses: said user interface information includes a user interface display of explanatory text regarding the status of said at least one data storage device (user interface module, paragraph 0455).

8. Regarding claim 4, Jackson further discloses: said user interface information includes a user interface display of graphical data illustrating a real-time status of said at least one data storage device (management and tracking may be performed in real-time, paragraph 0271, lines 13-18).

9. Regarding claim 6, Jackson further discloses storing data in a storage medium such as disk drives (storage management engine uses a disk cache, paragraph 0121, lines 1-10).

10. Regarding claim 7, Jackson discloses a method of monitoring the condition of a plurality of data storage devices in a computer network, said method comprising the steps of:

providing a computer network including a plurality of interconnected computers, at least some of said computers having corresponding data storage devices (a computer network inherently has a plurality of interconnected computers and at least some of said computers having corresponding data storage devices);

providing administrator level software in one of said computers (the service management infrastructure, paragraphs 0288 and 0289);

providing server agent software in each computer having a corresponding data storage device to be monitored (an applications server may be programmed to execute applications software on behalf of a remote client, thereby creating data for use by the client. Paragraph 0079);

retrieving log page data of a monitored data storage device by said server agent software (logging and analysis manager may be configured to have three component modules: data retrieval module, data analysis module, and user interface module. Paragraph 0454);

electronically transmitting said log page data to said computer having said administrator level software (the service management infrastructure, paragraphs 0288 and 0289);

storing said log page data in a database of said administrator level software (History repository 2300 may be implemented as a database, paragraph 0444); and

generating user interface information corresponding to said stored log page data to provide a status of the monitored data storage device (logging and analysis manager may be configured to have three component modules: data retrieval module, data analysis module, and user interface module. Paragraph 0454).

The instant application addresses monitoring the condition of a plurality of data storage devices in a computer network. Jackson discloses a method to monitor system resources including bandwidth, storage processing, application processing, network protocol stack processing, host management processing, memory or storage capacity, etc. (paragraph 0270). Jackson also further discloses the service management infrastructure (paragraph 0288) which does service provisioning, service level agreement protocols, QoS and CoS policies, performance monitoring, reporting/billing, usage tracking, etc. The service management infrastructure is essentially some kind of administrator level software. Therefore, Jackson inherently addresses monitoring the condition of a plurality of data storage devices in a computer network as described in the instant application.

11. Regarding claim 8, Jackson further discloses: said user interface information includes a user interface display of explanatory text regarding the status of said at least one data storage device (paragraph 0455).

12. Regarding claim 24, Jackson discloses a system for monitoring resource performance in a heterogeneous client-server computer network, comprising:

a server computer, including:

data storage (a server computer inherently has data storage);

administrative level software stored in said data storage (the service management infrastructure, paragraph 0288);

a communication interface (a server computer inherently has a communication interface);

a communication network interconnected to said communication interface of said server computer (a communication network such as internet, paragraph 0199);

a client computer, including:

data storage (a computer inherently has data storage);

a communication interface interconnected to said communication network (a client computer inherently has a communication interface);

a data storage device (a client computer inherently has a data storage device); and

server agent software stored in said data storage and operable to query said data storage device for log page data and to provide said log page data to said server computer via said communication network in response to a request from said administrative level software (the service management infrastructure, paragraph 0288).

13. Claims 11-13, 16-17 and 19-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Haggard et al. (US 6,148,335), hereinafter referred to as Haggard.

14. Regarding claim 11, Haggard discloses a computational component for performing a method, the method comprising:

selecting a plurality of storage devices for monitoring (monitoring network storage devices inherently involves the selection of what to monitor first);

querying a client computer associated with at least a first of said storage devices for storage device data (A program that runs under an AIX userid is used to query the AIX server, column 8, lines 64-67);

receiving said storage device data (collect server resource information implies receiving server resource information, column 6, lines 4-8); and

checking performance parameter information of said at least a first of said storage devices, wherein said performance parameter information is received as part of said storage device data (FIGS. 6A-6B are illustration of a browser page showing the performance parameters for various server resources, column 3, lines 36-38).

The instant application addresses monitoring errors in a network of data storage devices. Haggard discloses a system to monitor system resources including CPU utilization, memory availability, I/O usage, and permanent storage capacity (Abstract). Therefore, Haggard inherently addresses monitoring errors in a network of data storage devices as described in the instant application.

15. Regarding claim 12, Haggard further discloses: in response to determining that a performance parameter of said at least a first of said storage devices is outside of a predetermined range, generating a status notification (Red Action List, column 8, lines 25-43).

16. Regarding claim 13, Haggard further discloses: characterizing a status of said at least a first storage device (server's overall status, column 8, lines 8-16).

17. Regarding claim 16, Haggard further discloses: wherein said status notification comprises a notice displayed to a user (server's overall status, column 8, lines 8-16 and Red Action List, column 8, lines 25-43).

18. Regarding claim 17, Haggard further discloses: wherein said storage device data comprises log page data (the binary log, column 8, line 65 – column 9, line 6).

19. Regarding claim 19, Haggard further discloses storing said performance parameter data in a database (database (116), column 7, lines 23-29).

20. Regarding claim 20, Haggard further discloses generating a report (FIG. 6B and generate daily, weekly and monthly historical performance data, column 2, lines 62-67) and a status (server's overall status, column 8, lines 8-16) for at least a storage device.

21. Regarding claim 21, Haggard further discloses server agent software for use on said associated client computer (remote command facility (RCF), column 6, lines 8-14).

22. Regarding claim 22, Haggard further discloses a computer-readable storage medium containing instructions for performing the method (memory devices, column 4 lines 27-38).

23. Regarding claim 23, Haggard further discloses wherein said computational component comprises a logic circuit (circuitry, column 4 lines 27-38).

### *Claim Rejections - 35 USC § 103*

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson in view of Haggard

26. Regarding claim 5 and 10, Jackson doesn't disclose a recommendation to a user regarding an appropriate remedial action to take in the event the at least one data storage device shows failure or degradation. However, Haggard discloses the reporting step includes the act of creating an action list in response to at least one performance parameter in the historical performance data exceeding an associated threshold (claim 10). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Haggard into Jackson's system, i.e., report a recommendation to a user regarding an appropriate remedial action to take in the event of failure or degradation. The motivation would be improving network performance and resource availability.

27. Claims 14-15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggard in view of Bates et al. (US 6,489,738 B1), hereinafter referred to as Bates.

28. Regarding claim 14, Haggard doesn't disclose predicting a failure status of a storage device. However, Bates discloses a method for predicting the possibility of a failure of a disk drive as a function of changes in one, or both, of the monitored electrical energizations (column 6, lines 56-67). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Bates into Haggard's system, i.e.,

predicting a failure status of a storage device. The motivation would be that this kind of prediction will provide the system operator information for future planning.

29. Regarding claim 15, Haggard doesn't disclose predicting a potential for future failure of a storage device. However, Bates discloses a method for predicting the possibility of a future failure of a disk drive as a function of changes in one, or both, of the monitored electrical energizations (column 6, lines 56-67). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Bates into Haggard's system, i.e., predicting a potential for future failure of a storage device.. The motivation is that this kind of prediction will provide the system operator information for future planning.

30. Regarding claim 25, Haggard discloses a monitored computer system, comprising:

means for communicating with a computer network (serial controller 88 and network adapter 90, column 5, lines 7-31);

means for collecting storage device performance data received from a plurality of storage devices through said means for communicating (data collection (110) is accomplished using a program referred to as a remote command facility (RCF), column 6, lines 8-14);

means for storing said collected storage device data (The file can be stored locally at data processing system 20, or stored at a remote location. Column 6, lines 28-35);

means for analyzing said collected storage device data, wherein a prediction of a future failure of said storage devices is generated (only the Statistical Analysis System for analysis, column 7, lines 25-33, but no prediction for a future failure.)

Haggard fails to disclose means for generating a prediction of a future failure of said storage devices. However, Bates discloses a means for predicting the possibility of a future failure of a disk drive as a function of changes in one, or both, of the monitored electrical energizations (column 6, lines 56-67). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Bates into Haggard's system, i.e., predicting a potential for future failure of a storage device. The motivation is that this kind of prediction will provide the system operator information for future planning.

31. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haggard in view of Parris (US 6,408,406), hereinafter referred to as Parris.

32. Regarding claim 18, Haggard doesn't disclose read errors or write errors as part of performance parameters. However, Parris discloses a set of stored historical performance parameters including a read error counter log and a write error counter log (column 7, lines 7-13). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Parris into Haggard's system, i.e., including read/write errors as part of performance parameters. The motivation is to track disk read/write operations as they are very important for a data storage device.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Lai whose telephone number is (571) 270-3236. The examiner can normally be reached on M-F 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on (571) 272-5026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael C. Lai
08JUNE2007

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